Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20544

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of	)	
	)	
Price Cap Performance Review	)	CC Docket No. 94-1
for Local Exchange Carriers	)	

Comments

The Ad Hoc Telecommunications Users Committee ("Ad Hoc" or the "Committee") hereby submits its comments in response to (a) the Federal Communication Commission's ("FCC" or the "Commission") Fourth Further Notice of Proposed Rulemaking in the above-captioned proceeding [1] and (b) issues 19 and 20 in the Second Further Notice of Proposed Rulemaking in CC Docket No. 94-1, Further Notice of Proposed Rulemaking in CC Docket No. 93-124, and Second Further Notice of Proposed Rulemaking in CC Docket No. 93-197.[2]

Economics and Technology, Inc. ("ETI"), the Committee's economic consultant, has prepared a report on issues raised in the X-Factor

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1 *Price Cap Performance Review for Local Exchange Carriers,* CC Docket No. 94-1, FCC 95-406, released, September 27, 1995, (hereinafter the "X-Factor NPRM").

2 *Price Cap Performance Review for Local Exchange Carriers,* CC Docket No. 94-1, FCC 95-393, released September 20, 1995, (hereinafter the "LEC Pricing Flexibility NPRM"). On November 13, 1995, the Chief, Common Carrier Bureau extended until December 11, 1995 and January 10, 1996 the dates for filing comments and reply comments, respectively, in response to the LEC Pricing Flexibility NPRM, except for issues 19 and 20 and paragraphs 159-172 of the LEC Pricing Flexibility NPRM. The same order stated that parties could file their comments on issues 19 and 20 as part of their comments in response to the X-factor NPRM on November 27, 1995, or could file them separately on the same date.

NPRM. ETI's report, which is entitled, "Establishing The X-Factor For The FCC Long-Term LEC Price Cap Plan," (the "ETI Report") is attached hereto. The ETI Report persuasively establishes that the currently effective X-Factors are too low and that the USTA total factor productivity studies previously submitted in this docket are unreliable, factually wrong, and methodologically flawed.

Ad Hoc has participated in every Commission price cap proceeding, and has consistently argued that a properly formulated price cap scheme can be a more effective form of economic regulation than traditional rate of return regulation. The Commission should seek to fashion its price cap rules so that they come as close as possible to producing the competitive result, i.e., that they mimic operation of an effectively competitive market.

Economic regulation, by the Commission or any other governmental authority would not be necessary if the relevant markets were effectively competitive. In competitive markets, vendors certainly have an incentive to improve their efficiency; if they do not, they will not survive. However, the greatest deficiency of traditional rate of return regulation is that it may actually encourage inefficient investment and operations. Price cap regulation, on the other hand, attempts to induce carriers to operate more efficiently. The beneficial effects of competitive markets, however, are not limited to encouraging efficient operations; competitive markets, among other things, also prevent vendors from retaining excessive profits. Marketplace forces eventually wring out excessive monopolistic profits.

In some quarters the debate over modification of the Commission's price cap rules seems focused almost exclusively on how to sever completely the link between price regulation and the carriers' cost of providing service. Some seem to believe that if the Commission removes limits on the Local Exchange Carriers' (LECs) profitability, the LECs will become more efficient and the public will benefit. But, in fact, the public would be shortchanged if the Commission were to allow the LECs unlimited earnings, even if the LECs earned their profits from increased efficiency. A competitive market would not allow such a situation to persist. The Commission can, and should, modify its LEC price cap rules to both encourage LEC efficiency and to limit appropriately the LECs' earnings. The Commission can, and should, promote increased efficiency without allowing the LECs' earnings to soar. Increased efficiency and reasonable rates characterize the competitive result that the Commission should seek to produce through its LEC price cap rules.

The most important step that the Commission could take to make its LEC price cap rules produce the competitive result is to properly specify the X-Factor. The X-Factor NPRM strongly suggests that the Commission may be inclined to use the results of total factor productivity ("TFP") studies to set and update the X-Factor in the LEC price cap rules. The ETI Report identifies and corrects serious substantive defects in the TFP studies that USTA previously submitted in this docket. Correction of those defects would produce an X-Factor of 9.9% for the LECs' interstate services, 7.1% for the total, i.e., interstate and intrastate combined operations.

The deficiencies in the USTA TFP studies include, but are not limited to, the following:

- Generally, USTA's TFP studies are unreliable and unauditable. USTA's expert has not verified the accuracy of important data underlying USTA's May 1994 study and the January 1995 update thereto. Moreover, the data are not from publicly available sources. Two critical components of USTA's capital index, i.e., the 1984 capital stock data and the telephone plant indices, suffer from these defects.
- USTA's output measurements cannot be replicated. Measures of physical output, which could be derived from public data, would be a preferable method for measuring output.
- USTA's TFP study uses only the cost of debt as the measure of cost of capital. USTA should have used a combination of debt and equity weighted by the LECs' debt/equity ratio.
- USTA utilized depreciation rates developed from a study for the economy as a whole. USTA should have used the Commission prescribed depreciation rates. Had it done so, its TFP studies would have produced a higher X-Factor.
- USTA developed its capital stock replacement values from data that are not public and cannot be audited from the record in this proceeding. USTA's

expert did not convert book costs to replacement costs. USTA's expert has conceded: (a) that the LECs performed the conversion calculations, (b) that he does not know the methodology used by the individual LECs in performing the conversion, and (c) that he does not know whether the LECs used a consistent methodology in making the conversion.

- While use of the Perpetual Inventory Method is not inherently objectionable, USTA's use of this methodology is polluted by the data problems identified above.
- USTA's labor index must be adjusted to account for one-time events. These events include "golden handshakes" given to encourage early retirements and OPEB-related expenses. Such expenses should be amortized over the appropriate time period.
- USTA should have, but did not, calculate an input price differential. An input price differential is a critical ingredient in formulating the X-Factor.
- USTA's studies fail to account for hedonic price changes which would increase the input price differential.

The ETI Report also shows that as a matter of economics it would be unreasonable for the Commission to set the X-Factor in its LEC price cap rules based on "total company" experience. Instead, the Commission should utilize an interstate services X-Factor to recognize that the LECs interstate services are provided more efficiently and at lower relative cost than the LECs' mix of intrastate services. The ETI Report calculates an interstate only X-Factor of 9.9%.

As a matter of law, the Commission has no choice; it must develop an interstate only X-Factor. On May 19, 1995, Ad Hoc filed a Petition for Expedited Partial Reconsideration of *Price Cap Performance Review for Local Exchange Carriers,* First Report and Order, CC Docket No. 94-132 (released April 7, 1995) (the "First Report and Order"). Therein, Ad Hoc, *inter alia,* explained that the Commission's reliance on total company TFP data in setting the X-Factor is inconsistent with *Smith v. Illinois Bell Telephone Co.,* 282 U.S. 133 (1930). If a LEC's productivity for interstate services differs significantly from its productivity for intrastate services (which is the case), the Commission must rely on separated results to ensure that interstate rates remain just and reasonable.[3] Ad Hoc reasoned in its petition that while *Smith* obviously does not address the issue of whether carrier TFP rates must be calculated separately for interstate and intrastate services, it does speak to the need for jurisdictional allocations to avoid unlawful rates. TFP rates serve virtually the same function as the measurement of costs and revenues served in *Smith.* The carriers' TFP rate, the economy-wide measure of inflation, and exogenous cost changes are the factors that will determine the extent to which carriers must change their interstate rates, just as costs and revenues were of controlling importance in earlier eras. That methods of regulation may have changed does not mean that

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[3] Paragraph 63 of the X-Factor NPRM states, "If a LEC's productivity for interstate services differs significantly from its productivity for intrastate services, it may be necessary to rely on separated costs to ensure that interstate rates remain just and reasonable."

public utility authorities, including the Commission, now can regulate the rates of carriers that provide interstate and intrastate services without making the necessary jurisdictional allocations. Under it's price cap regime, the Commission must measure the LECs' interstate X-factor.

The ETI Report also addresses issues raised by the disenchantment of at least some with sharing.[4] ETI reasons that the Commission must incorporate specific mechanisms into the overall price cap system to assure that some portion of the LECs' efficiency gains be flowed through to ratepayers. Obviously, correct specification of the X-Factor is critical to realization of this goal. But correct specification of the X-factor for the entire price cap LEC community is far from certain, and even more difficult for individual carriers because productivity rates will vary from carrier-to-carrier. To protect ratepayers from either form of misspecification, the Commission included sharing as a key component of price cap regulation.

In its *Price Cap Performance Review for Local Exchange Carriers,* FCC 95-132, released April 7, 1995, the Commission, however, eliminated sharing on an interim basis for LECs that chose to operate under a 5.3% X-Factor. Still pending before the Commission is Ad Hoc's Petition for Expedited Partial Reconsideration which, *inter alia,* urges the Commission to reconsider this portion of the *Price Cap Performance Review for Local Exchange Carriers*

[4] *See*, ETI Report, part 5, "Sharing versus Moving Average." The *LEC Pricing Flexibility NPRM* presents a number of questions regarding X-factor flexibility and relaxation of the sharing obligation. These questions are grouped as Issues 19 and 20. As noted above, even though the *LEC Pricing Flexibility NPRM* presents Issues 19 and 20 for comment, the Commission is allowing interested persons to address these issues in comments on the *X-Factor NPRM.*

decision. Ad Hoc submits that the Commission cannot satisfy its statutory responsibility to assure that LECs' interstate access service rates are just and reasonable if it eliminates sharing and in so doing effectively removes any cap on LEC earnings from interstate access service. While the Commission surely has flexibility in selecting the methods it will use to assure that the LECs' rates are just and reasonable, it may not regulate LEC rates without regard to whether the LECs' earnings from such rates are within the zone of reasonableness. The Committee further submits that the zone of reasonableness cannot be determined without reference to the LECs' cost of capital and the LECs' earnings compared to the cost of capital.

As a practical matter, Ad Hoc's concerns over elimination of sharing, are directly related to (1) the level of the X-factor and (2) whether the Commission includes an appropriate Consumer Productivity Dividend ("CPD") in the price cap formula. Inclusion of an appropriate X-Factor and CPD reduces the importance of sharing because setting these components of the price cap formula correctly reduces the odds of LECs realizing excessive returns.

The ETI Report also shows that allowing LECs to select annually from multiple X-Factors effectively vitiates the sharing requirement. By offering LECs a choice of X-Factors, the Commission virtually guarantees that the consumers' return from price cap regulation will be lower than it should be. By offering low-performance LECs the opportunity to operate under a lower X-factor, the Commission allows these carriers to avoid the penalty that should come (and that would come in the marketplace) from inefficient operation.

All of the foregoing strongly argues against adoption of an automatic mechanism for adjusting the X-Factor. The evidence indicates that the opportunities for manipulating total factor productivity studies are very substantial. The approach and corrections recommended in the ETI Report would go a long way toward eliminating the opportunities for manipulation.

Conclusion

In view of the foregoing, Ad Hoc requests that the Commission adopt the recommendations and methodology of the ETI Report as the permanent methodology for calculation of the X-Factor in its price cap regulation of the LECs' interstate access service rates.

Respectfully submitted:

Ad Hoc Telecommunications
Users Committee

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ESTABLISHING THE X-FACTOR FOR THE FCC LONG-TERM LEC PRICE CAP PLAN

Price Cap Performance Review for Local Exchange Carriers

CC Docket 94-1

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prepared for the

Ad Hoc Telecommunications Users Committee

December, 1995

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Preface | ESTABLISHING THE X-FACTOR FOR THE FCC LONG-TERM LEC PRICE CAP PLAN

In its *Fourth Further Notice of Proposed Rulemaking* (FFNPRM) issued September 27, 1995 in the Commission's Price Cap Review proceeding (CC Docket 94-1), the Commission sought further comment on a broad range of issues relating to the establishment of a long-term price cap plan. Many, if not most, of these issues relate to the Commission's tentative conclusion that the permanent X-Factor should be based upon a Total Factor Productivity (TFP) model, and in particular on the model developed in the Christensen Associates, Inc. Study that was commissioned by the United States Telephone Association (USTA). The Ad Hoc Telecommunications Users Committee (Ad Hoc Committee) commissioned Economics and Technology, Inc. (ETI) to prepare this report as part of the Committee's response to the FFNPRM. In this report, ETI addresses the specific issues raised in the FFNPRM, with emphasis on those issues concerning the Christensen/USTA TFP model and its application to the establishment of a permanent X factor.

The authors are President and Vice President—Senior Economist, respectively, at ETI. They gratefully acknowledge the invaluable advice and assistance contributed by Dr. Ersnt R. Berndt, Professor of Applied Economics at the Alfred P. Sloan School of Management, Massachusetts Institute of Technology, in the preparation of this study. Research and analytical support was provided by Jennifer L. Gray, Irena V. Tunkel, and Sonia N. Jorge of ETI. The authors also benefitted from the helpful comments and suggestions of their colleague, Susan M. Gately, Vice President of ETI.

Boston, Massachusetts

December 15, 1995

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1 INTRODUCTION AND SUMMARY

Purpose of this Report

This report provides an important follow-up to our previous study, *An Empirical Estimate of the LEC Price Cap "X-Factor" based upon Historic National LEC Productivity and Input Price Trends,* prepared by ETI on behalf of the Ad Hoc Telecommunications Users Committee in June, 1994, in the first phase of this proceeding. In that earlier work, ETI demonstrated that the correct calculation of a TFP-based X-Factor must reflect the historic post-divestiture LEC productivity growth rate adjusted to recognize the decreasing real price of LEC inputs. In that study, we accepted the general findings of the Christensen/USTA May, 1994 study with respect to its estimate of the *absolute* LEC industry TFP.[1] We noted, however, that in *applying the results* of the Christensen/USTA study to the calculation of the X-factor, USTA failed to reflect the indisputable fact that over the very same post-divestiture period studied by Christensen, LEC input prices *decreased* in real terms, i.e., LEC input price growth was significantly less than the economy-wide rate of price inflation. We showed why USTA's failure to incorporate an input price adjustment based upon post-divestiture conditions resulted in an understated productivity offset and a correspondingly excessive annual price cap rate adjustment, creating a direct and inappropriate transfer of wealth from ratepayers to the LECs.

ETI has continued to be an active participant in price cap and incentive regulation matters before state regulatory bodies.[2] In undertaking this study, as with previous reports prepared by ETI for the present proceeding, we have drawn in part on knowledge and experience obtained in those state proceedings. In particular, in the current price cap review

1. As we demonstrate here, the Christensen/USTA TFP methodology is seriously flawed both as to the sources and consistency of its underlying data as well as numerous methodological deficiencies. Moreover, while we accepted, for purposes of our previous examination, the Christensen//USTA estimate of LEC industry TFP, we expressly rejected the attempt by Christensen/USTA to transform that result into some sort of "differential" TFP that reflected the extent to which LEC industry productivity growth exceeded economy-wide productivity growth.

2. See, e.g., California PUC, I.95-05-047; New York PSC Case 92-C-0665; Massachusetts DPU 94-50; Connecticut DPUC 95-0301; Maine PUC 94-123, 94-254; Illinois Commerce Commission 92-0448.

proceeding before the California Public Utilities Commission,[3] ETI has had the opportunity to participate in the cross-examination of the principal author of the Christensen/USTA study, Dr. Laurits Christensen, and also to prepare and propound information requests concerning his so-called "1993 Update" to the original May, 1994 Christensen/USTA study that USTA provided to the FCC in an *ex parte* filing on January 20, 1995. We believe the information that ETI was able to obtain as a result of the California proceeding is highly relevant and informative to the present performance review. It provides for specific quantitative and qualitative findings that otherwise would not have been adduced based solely upon the information available in the interstate jurisdiction. In addition, evidence from the California proceeding provides overwhelming demonstration that the Christensen/USTA study fails to meet the empirical requirements established by the Commission in the FFNPRM.[4]

Summary

In this new report, we reiterate the importance of an input price adjustment, and we further refine the measurement of input price changes to reflect measures of price movements publicly available from disinterested sources[5] as well as hedonic adjustments to the nominal price changes.[6] The desirability of relying upon publicly available information from objective, disinterested sources vis-a-vis utilizing internally generated self-serving LEC data is obvious and well-recognized by the Commission in the FNPRM. In this report, we identify and apply price asset deflator data available from the Bureau of Labor Statistics (BLS) in lieu of LEC-generated Telephone Plant Index (TPI) data in the calculation of input prices and quantities.

As established in the economics and statistics literature, hedonic price changes adjust indexes to account for changes in quality and/or capacity of the products over time. Such adjustments are especially necessary for the types of capital inputs used in the telecommuni-

3. California PUC Order Instituting Investigation (I.) 95-05-047, *Incentive-Based Regulatory Framework for Local Exchange Carriers*.

4. See FFNPRM, para. 15.

5. Rather than rely upon objective, disinterested sources, the Christensen/USTA study relied upon price indices generated internally by each of the participating LECs. As we explain, these critically important data series are neither replicable nor verifiable, and in fact are considered "proprietary" by the LECs and as such were not even disclosed.

6. In addition to their other deficiencies, the LEC input price indices fail entirely to reflect qualitative changes in the nature, character and capacity of LEC capital inputs over the period of the Christensen/USTA study, resulting in a systematic upward bias in the level of LEC capital costs.

cations industry, i.e., inputs containing computer chips, digital electronics, fiber optics, digital switching equipment, and other high-technology items, whose specifications and characteristics have evolved rapidly over the post-divestiture study period. For these types of inputs, the adjustment of price indexes to account properly for changes in quality and/or capacity over time is a very significant issue. Failure to make hedonic price adjustments will necessarily overstate input price growth and result in an X-factor that is misspecified and most likely biased downward.

This report also emphasizes the necessity of developing an interstate-only TFP measure, rather than one based upon total company operations. A TFP based upon total company operations, as developed in the Christensen/USTA study, results in an understatement of output growth rates and hence an understatement of TFP. Since the purpose of the price cap rate adjustment mechanism is to replicate on an industry-wide basis the same types of jurisdictional costs that had been considered on a company-specific basis under rate of return (ROR) regulation, the use of anything other than jurisdictional productivity growth measurements will produce disparities as between the interstate and state jurisdictions for which no corrective mechanism precisely exists.

This report also highlights a number of other methodological deficiencies in the Christensen/USTA study including:

- The failure to recognize the distinction between debt and equity in the application of taxes as part of the rental price formula;

- The failure to apply depreciation rates which reflect the fundamental economic conditions of capital recovery for the LECs; and

- The failure to use direct, quantity-based measures of output.

Our analysis demonstrates that, when the necessary corrections of the various deficiencies that have been described above are made to the Christensen/USTA study, the X-Factor is found to be significantly greater than both the paltry 2.1% as claimed by USTA and even the highest 5.3% (no sharing/no earnings cap) level adopted by the Commission in the *First Report and Order.*

The results of our analysis are presented in Section 4 of this report. As we show, the correct X-Factor (including the input price differential and a modest 0.5% Consumer Productivity Dividend) is 9.9% for jurisdictionally interstate services. This should be compared with the "base case" *total company* X-factor of 5.1%, which was derived directly from Christensen's total company study (without corrections) and including both an input price differential and the 0.5% Consumer Productivity Dividend. Although only the interstate X-factor is relevant for application in the interstate jurisdiction, we also present a corrected calculation of the total company X-factor for comparison purposes. That corrected total company result is 7.1%.

2 | EMPIRICAL REQUIREMENTS

Notwithstanding methodological deficiencies, the Christensen Study, as a threshold matter, does not satisfy the empirical requirements identified in the FFNPRM as necessary in order to meet the Commission's general criteria for an X-factor adopted in a long-term price cap plan.

In the FFNPRM, the Commission sets forth three basic criteria that should be satisfied by any X-factor that is ultimately adopted for a long-term price cap plan:

(1) The X-factor must be economically meaningful;

(2) The X-factor should ensure that ongoing gains by the LECs in reducing unit costs are passed through to consumers; and

(3) The calculation of the X-factor should be reasonably simple and be based on accessible and verifiable data.[7]

Consistent with the fulfillment of these three criteria, and particularly the third one, which requires that the calculation of the X-factor be *"reasonably simple and based on accessible and verifiable data,"* the Commission identifies a number of concerns and corresponding requirements specifically relating to empirical issues.

For example, the Commission notes its concern that "the data required to calculate the X-factor in our long-term price cap plan be publicly available in a timely fashion," and correspondingly, that "the availability and timeliness of the data required to develop the X-factor will be an important consideration in our decision whether to adopt a particular method for the long-term price cap plan."[8] The Commission also notes its concern regarding data requiring proprietary treatment and how LEC interests could be balanced with

7. FFNPRM, para. 16.

8. *Id.*, para 17.

parties' abilities to participate effectively in the proceeding.[9] The Commission further directs parties "to explain how aggregation would affect the ability of the Commission and interested parties to verify data and replicate the results of studies for the different X-factor methods."[10] The Commission also indicates its tentative conclusion that company or study area specific data may be necessary "to ensure auditability."[11]

The Commission expresses a number of concerns regarding the calculation of the capital input component of the TFP in particular, recognizing that the capital index "raises especially difficult issues due to the fact that it is based on a number of complex judgments."[12] For example, the Commission seeks comment on the "reliability of the method and the data used in the Christensen Study to compute replacement values";[13] "the validity of the economic stock adjustment factor method and on the validity of the data on which it relies,"[14] "how closely the data [that is used to derive current dollar investment] were audited internally by the LECs;"[15] whether the telephone plant indices (TPIs) used to deflate current dollar investment "could be calculated in a timely manner and from publicly available data;"[16] and "whether the data required to calculate the implicit rental price in future TFP updates would be publicly available in a timely fashion."[17]

Finally, and in a particularly firm statement, the Commission declared that:

> Any party submitting studies, proposed methods for calculating an X-factor, or other empirical information must furnish promptly upon request by Commission staff or any party to this proceeding workpapers and any other data necessary to replicate the results submitted in this proceeding.

9. *Id.*, para.19.

10. *Id.*, para.21.

11. *Id.*, para. 21.

12. *Id.*, para. 32.

13. *Id.*, para. 42.

14. *Id.*, para. 43.

15. *Id.*, para. 44.

16. *Id.*, para. 45.

17. *Id.*, para. 48.

> If a party fails to do so, we will accord no weight to those studies, methods, or empirical information in our deliberations.[18]

Notwithstanding methodological deficiencies described in Section 3 of this report, as a threshold matter, the Christensen Study submitted by USTA does not come close to satisfying the Commission's empirical requirements as clearly and repeatedly set forth in the FFNPRM. As with any study, the validity and reliability of the Christensen Study results depend critically upon the quality and accountability of the underlying data as well as upon the ability to verify and replicate it. If the data is biased or in any way contaminated, then the study results will not be valid, regardless of the integrity of the study methodology.[19] Information obtained during the course of the current price cap review proceeding before the California Public Utilities Commission (CPUC),[20] where Dr. Christensen appeared as a witness for Pacific Bell, confirms a fundamental lack of knowledge and control on the part of Dr. Christensen vis-a-vis his client LECs with respect to the development of key underlying data *upon which he relied* in calculating the LEC TFP results presented in the Christensen/USTA study. Information obtained in the California proceeding also confirms the inability of the FCC and interested parties to replicate and verify key underlying data series used to calculate the TFP results. As a consequence, the Christensen/USTA study fails to satisfy the Commission's general criteria for an X-factor adopted in a long-term price cap plan, i.e., that the calculation of the X-factor be "reasonably simple and based on accessible and verifiable data."

Evidence recently adduced in California sheds new light on problems with the underlying data and methodology used in the Christensen/USTA study to develop TFP results, and on the process by which the so-called "1993 Update" was prepared.

The California PUC is currently engaged in the second performance review, I.95-05-047, of the price cap regulation system (the "New Regulatory Framework" ("NRF")) that became effective as of January 1, 1990.[21] In this review proceeding, Dr. Christensen sponsored testimony on behalf of Pacific Bell with respect to the May, 1994 and January,

18. *Id.*, para 15; see also para. 148.

19. Of course, similarly, integrity of the underlying data cannot compensate for a flawed methodology.

20. California PUC, I.95-05-047, Transcript of September 27, 1995 and interrogatories of the California Committee for Large Telecommunications Consumers (CCLTC), admitted as Exhibit 8.

21. The California PUC adopted price cap regulation for Pacific Bell and GTE-California in Phase II of its "Alternative Regulatory Frameworks" investigation, I.87-11-033. D.89-10-031, 33 CPUC 2d 43 (1989).